

## Ultramid® B3ZG6

PA6-I-GF30

BASF

An impact-modified, glass fibre reinforced injection molding grade for industrial items requiring very high impact strength and rigidity, used e.g. for automobile airbag housings and half-shells for suitcases.

The products can also be offered as BMBcert™ and/or Cycled™. Due to the Massbalance approach the product properties do not change.

| Rheological properties      | dry / cond | Unit      | Test Standard   |
|-----------------------------|------------|-----------|-----------------|
| <b>ISO Data</b>             |            |           |                 |
| Melt volume-flow rate, MVR  | 20 / *     | cm³/10min | ISO 1133        |
| Temperature                 | 275 / *    | °C        | -               |
| Load                        | 5 / *      | kg        | -               |
| Molding shrinkage, parallel | 0.3 / *    | %         | ISO 294-4, 2577 |
| Molding shrinkage, normal   | 0.7 / *    | %         | ISO 294-4, 2577 |

| Mechanical Properties                   | dry / cond  | Unit  | Test Standard |
|-----------------------------------------|-------------|-------|---------------|
| <b>ISO Data</b>                         |             |       |               |
| Tensile Modulus                         | 8950 / 5180 | MPa   | ISO 527       |
| Stress at Break                         | 170 / 96    | MPa   | ISO 527       |
| Strain at Break                         | 4.4 / 10.8  | %     | ISO 527       |
| Tensile Creep Modulus, 1h               | * / 3800    | MPa   | ISO 899-1     |
| Tensile Creep Modulus, 1000h            | * / 3000    | MPa   | ISO 899-1     |
| Impact Strength (Charpy), +23°C         | 100 / 119   | kJ/m² | ISO 179/1eU   |
| Impact Strength (Charpy), -30°C         | 102 / 107   | kJ/m² | ISO 179/1eU   |
| Notched Impact Strength (Charpy), +23°C | 20.2 / 33.8 | kJ/m² | ISO 179/1eA   |
| Notched Impact Strength (Charpy), -30°C | 11.3 / 11.1 | kJ/m² | ISO 179/1eA   |

| Thermal Properties                          | dry / cond | Unit  | Test Standard  |
|---------------------------------------------|------------|-------|----------------|
| <b>ISO Data</b>                             |            |       |                |
| Melting Temperature (10°C/min)              | 220 / *    | °C    | ISO 11357-1/-3 |
| Temp. of deflection under load (1.80 MPa)   | 200 / *    | °C    | ISO 75-1/-2    |
| Temp. of deflection under load (0.45 MPa)   | 220 / *    | °C    | ISO 75-1/-2    |
| Vicat softening temperature, 50°C/h 50N     | 220 / *    | °C    | ISO 306        |
| Coeff. of Linear Therm. Expansion, parallel | 21 / *     | E-6/K | ISO 11359-1/-2 |
| Coeff. of Linear Therm. Expansion, normal   | 116 / *    | E-6/K | ISO 11359-1/-2 |
| Burning Behav. at 1.5 mm Nom. Thickn.       | HB / *     | class | UL 94          |
| Thickness tested                            | 1.6 / *    | mm    | -              |
| UL recognition                              | yes / *    | -     | -              |
| Burning Behav. at thickness h               | HB / *     | class | UL 94          |
| Thickness tested                            | 0.7 / *    | mm    | -              |
| UL recognition                              | yes / *    | -     | -              |
| Oxygen index                                | 23 / *     | %     | ISO 4589-1/-2  |

| Electrical Properties       | dry / cond  | Unit  | Test Standard |
|-----------------------------|-------------|-------|---------------|
| <b>ISO Data</b>             |             |       |               |
| Relative permittivity, 1MHz | 3.8 / 6.8   | -     | IEC 62631-2-1 |
| Dissipation Factor, 100Hz   | 200 / 2200  | E-4   | IEC 62631-2-1 |
| Dissipation Factor, 1MHz    | 200 / 2000  | E-4   | IEC 62631-2-1 |
| Volume Resistivity          | 1E13 / 1E10 | Ohm*m | IEC 62631-3-1 |
| Surface Resistivity         | * / 1E10    | Ohm   | IEC 62631-3-2 |
| Electric Strength           | 46 / 38     | kV/mm | IEC 60243-1   |
| Comparative tracking index  | - / 600     | -     | IEC 60112     |

| Other Properties    | dry / cond | Unit  | Test Standard  |
|---------------------|------------|-------|----------------|
| <b>ISO Data</b>     |            |       |                |
| Water Absorption    | 6.2 / *    | %     | Sim. to ISO 62 |
| Humidity absorption | 2 / *      | %     | Sim. to ISO 62 |
| Density             | 1330 / -   | kg/m³ | ISO 1183       |

| Material Specific Properties | dry / cond | Unit  | Test Standard       |
|------------------------------|------------|-------|---------------------|
| <b>ISO Data</b>              |            |       |                     |
| Viscosity number             | 160 / *    | cm³/g | ISO 307, 1157, 1628 |

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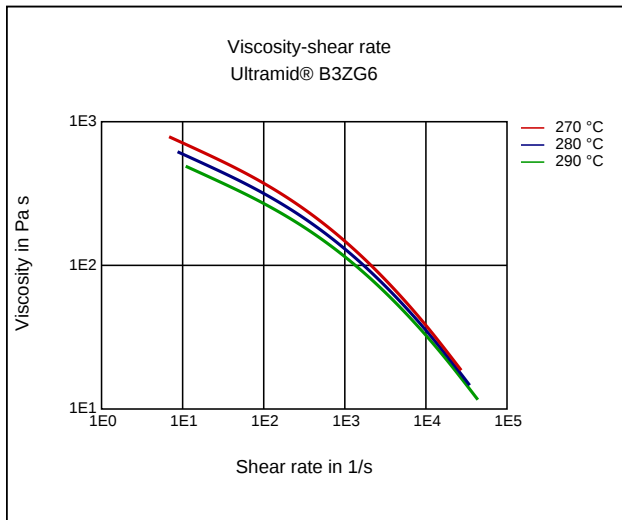
| Rheological calculation properties | Value | Unit | Test Standard |
|------------------------------------|-------|------|---------------|
| <b>ISO Data</b>                    |       |      |               |
| Ejection temperature               | 160   | °C   | -             |

| Test specimen production              | Value | Unit | Test Standard |
|---------------------------------------|-------|------|---------------|
| <b>ISO Data</b>                       |       |      |               |
| Injection Molding, melt temperature   | 280   | °C   | ISO 294       |
| Injection Molding, mold temperature   | 80    | °C   | ISO 294       |
| Injection Molding, injection velocity | 200   | mm/s | ISO 294       |

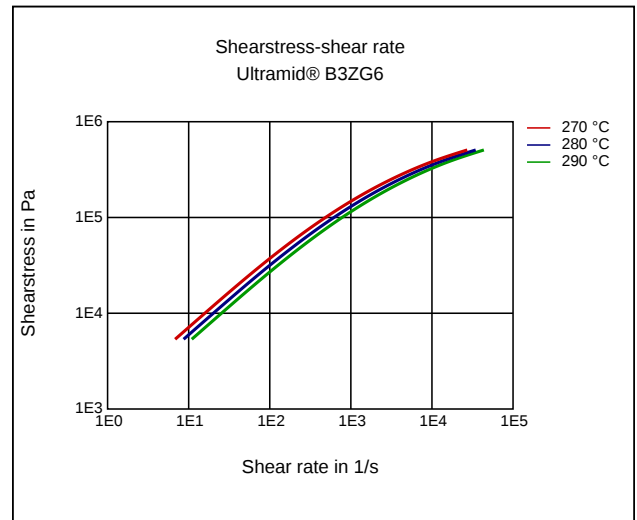
| Processing Recommendation Injection Molding | Value     | Unit | Test Standard |
|---------------------------------------------|-----------|------|---------------|
| Pre-drying - Temperature                    | 80        | °C   | -             |
| Pre-drying - Time                           | 4         | h    | -             |
| Processing humidity                         | ≤0.15     | %    | -             |
| Melt temperature                            | 270 - 290 | °C   | -             |
| Mold temperature                            | 80 - 90   | °C   | -             |

## Diagrams

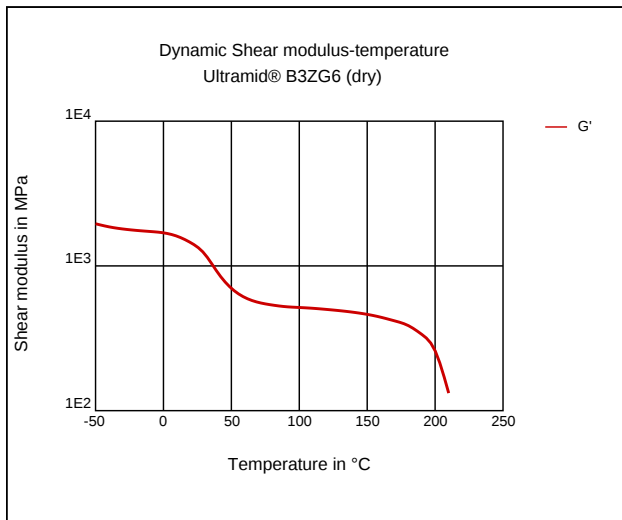
### Viscosity-shear rate



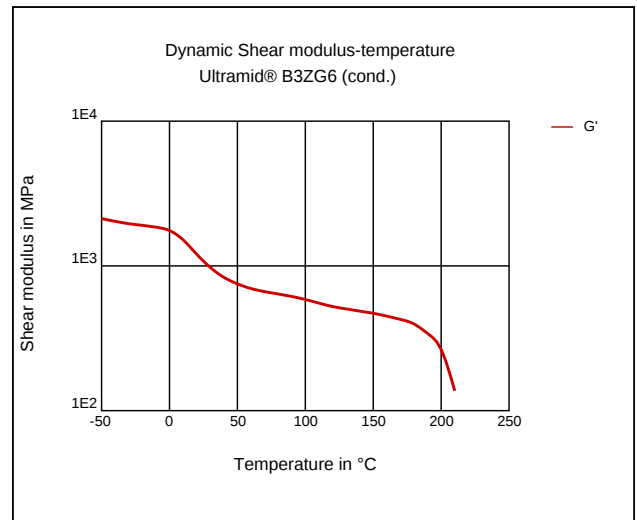
### Shearstress-shear rate



### Dynamic Shear modulus-temperature



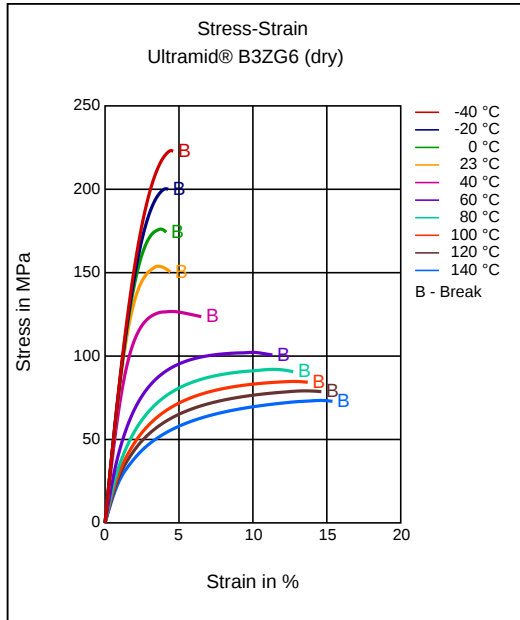
### Dynamic Shear modulus-temperature



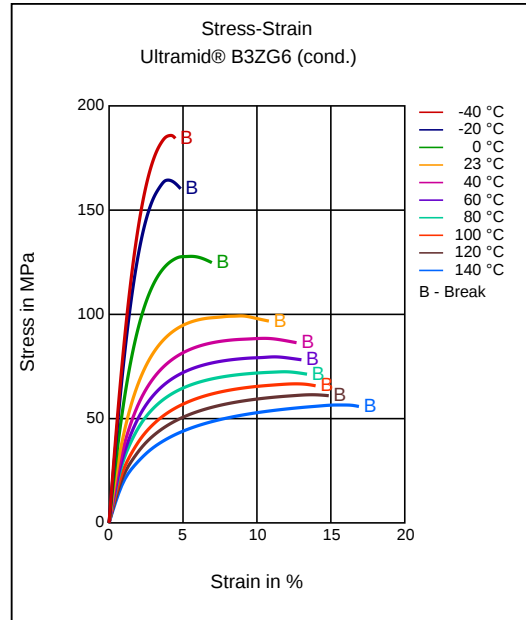
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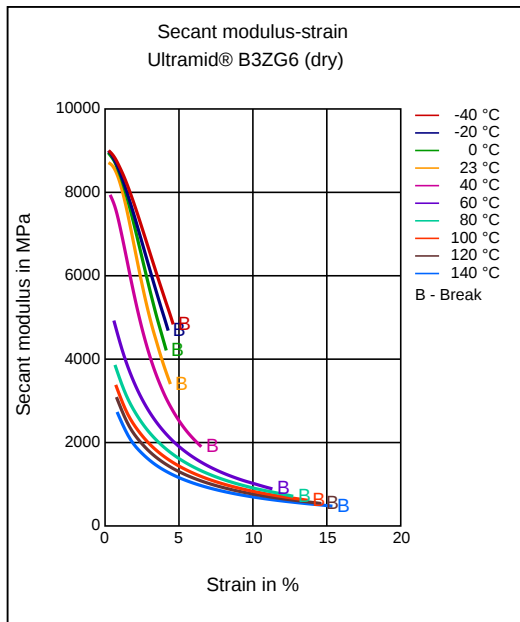
**Stress-strain**



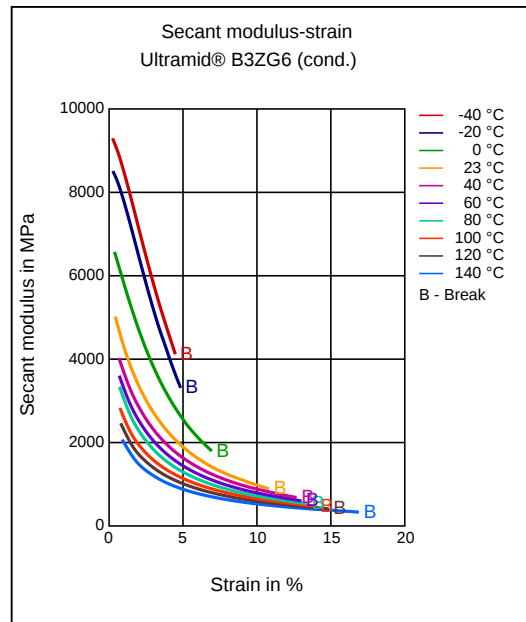
**Stress-strain**



**Secant modulus-strain**



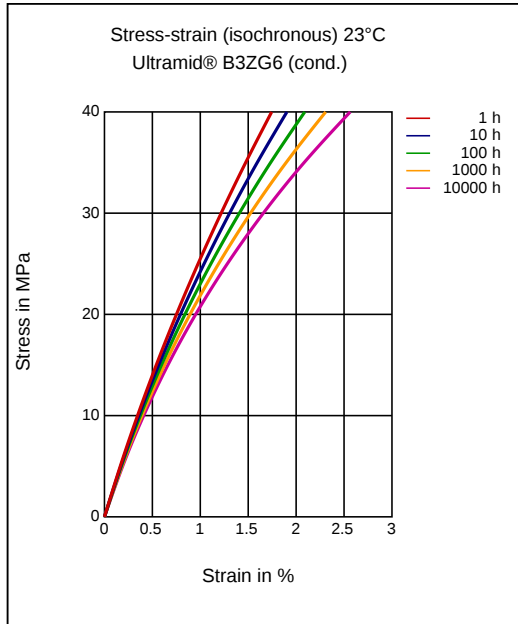
**Secant modulus-strain**



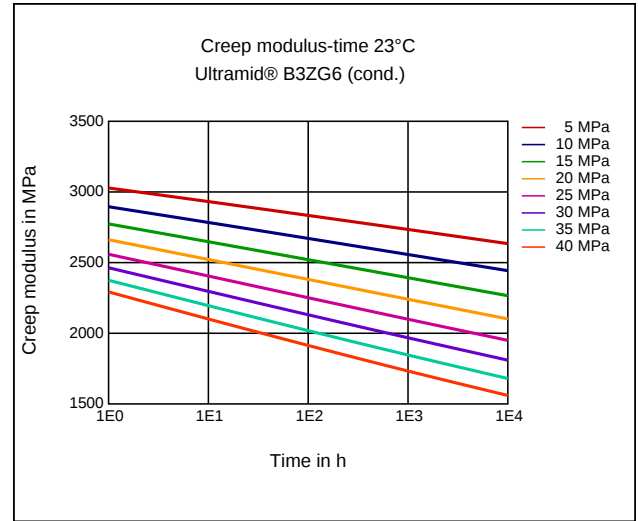
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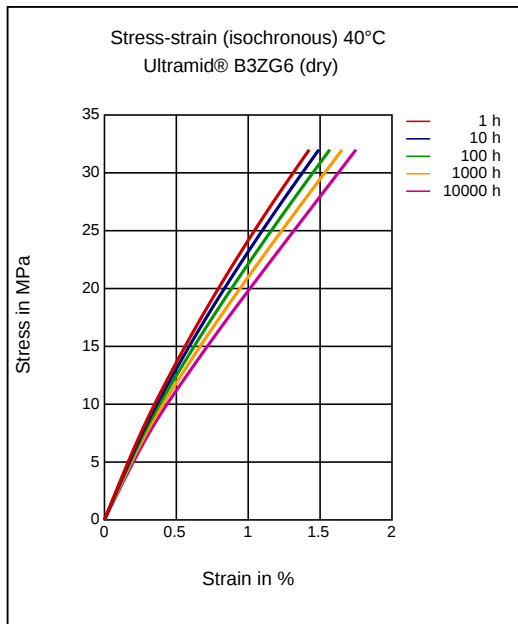
**Stress-strain (isochronous) 23°C**



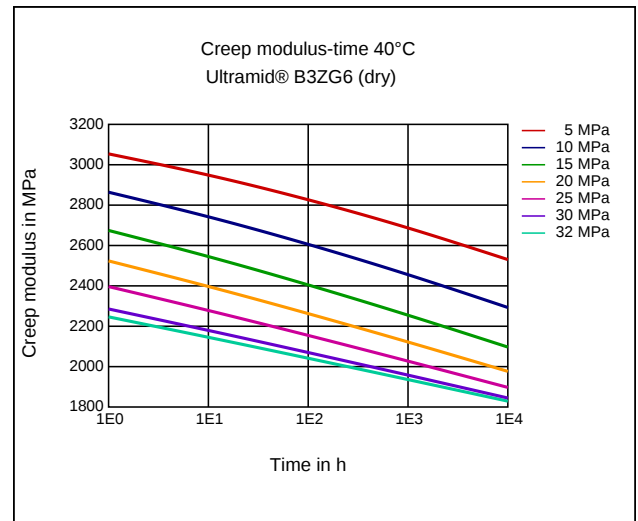
**Creep modulus-time 23°C**



**Stress-strain (isochronous) 40°C**



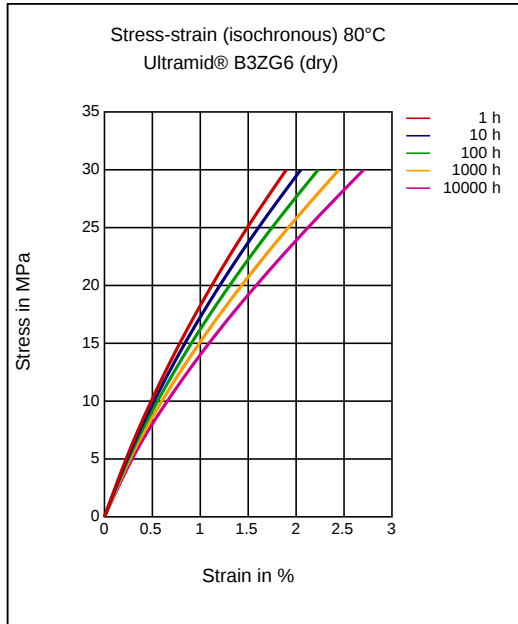
**Creep modulus-time 40°C**



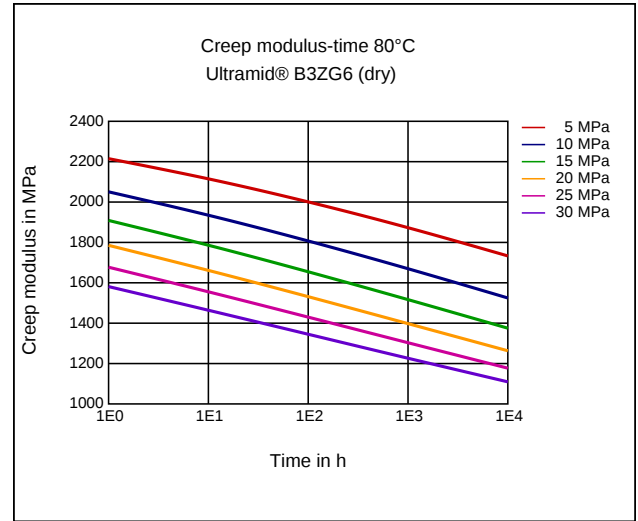
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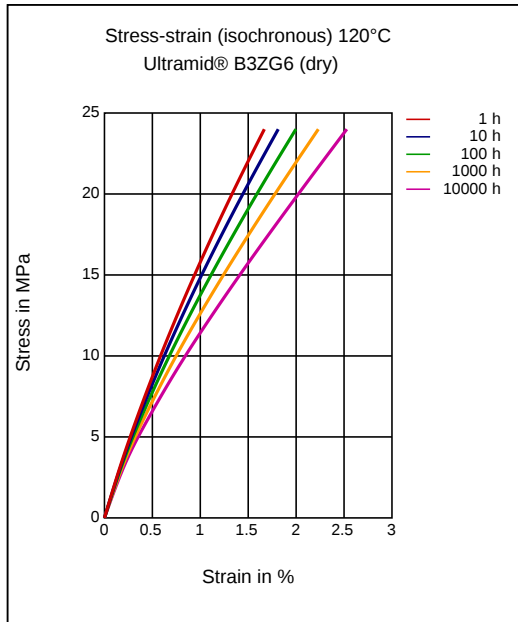
**Stress-strain (isochronous) 80 °C**



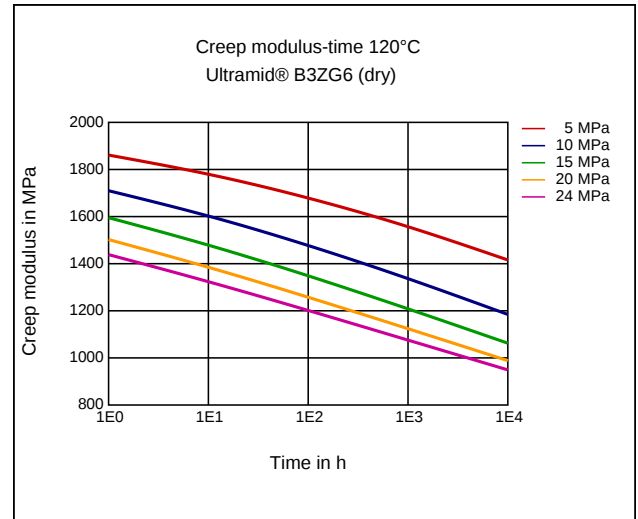
**Creep modulus-time 80 °C**



**Stress-strain (isochronous) 120 °C**



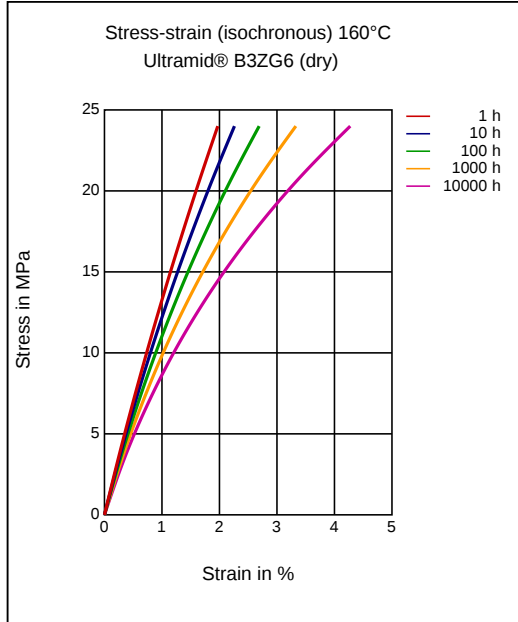
**Creep modulus-time 120 °C**



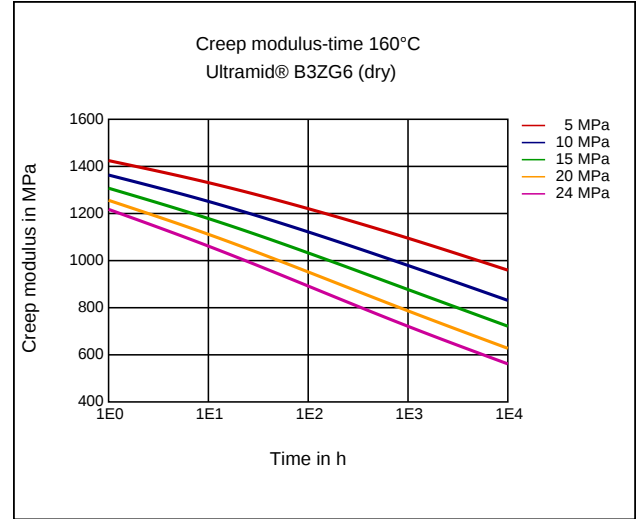
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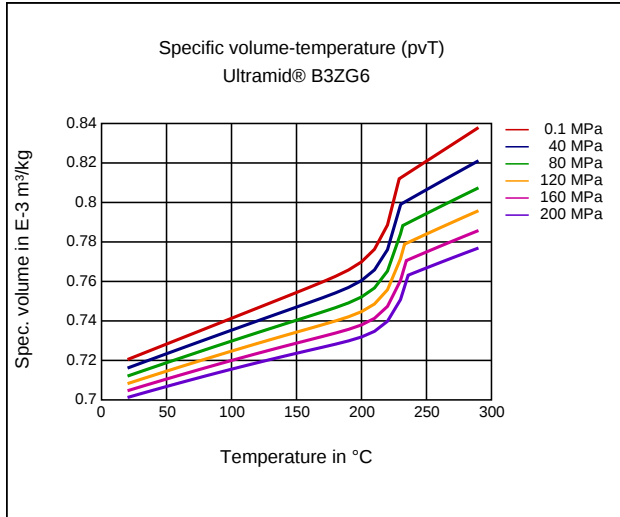
**Stress-strain (isochronous) 160°C**



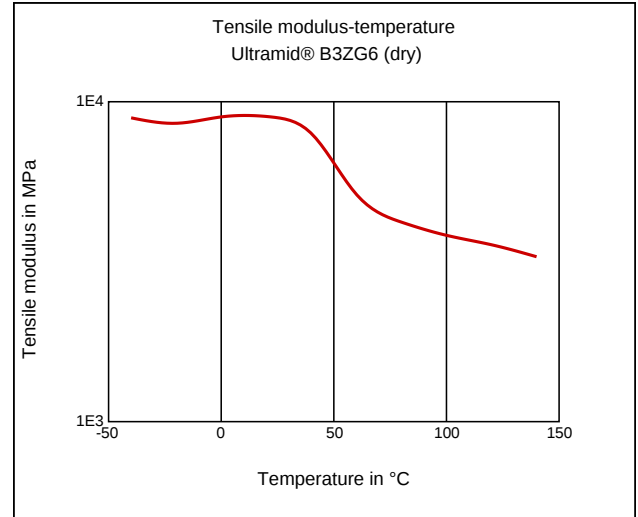
**Creep modulus-time 160°C**



**Specific volume-temperature (pvT)**



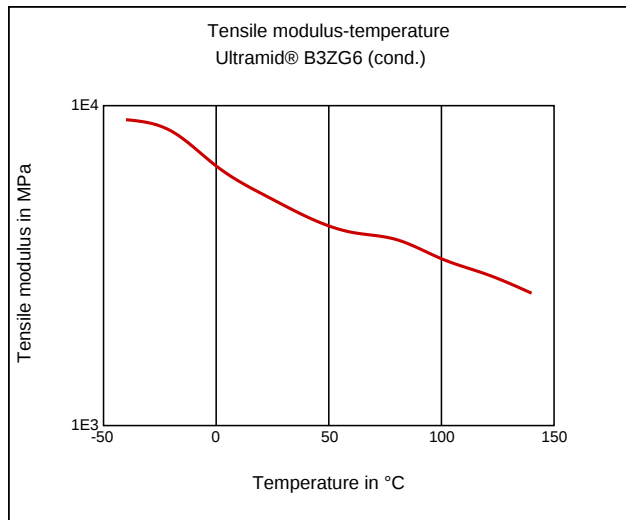
**Tensile Modulus-Temperature**



## Ultramid® B3ZG6 PA6-I-GF30

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### Tensile Modulus-Temperature



### Characteristics

#### Processing

Injection Molding

#### Additives

Lubricants, Release agent

#### Delivery form

Pellets

#### Special Characteristics

Impact modified, Heat aging stabilized

### Injection Molding

#### PREPROCESSING

Pre/Post-processing, max. allowed water content: .15 %

Pre/Post-processing, Pre-drying, Temperature: 80 °C

Pre/Post-processing, Pre-drying, Time: 4 h

#### PROCESSING

injection molding, Melt temperature, range: 270 - 290 °C

injection molding, Melt temperature, recommended: 280 °C

injection molding, Mold temperature, range: 80 - 90 °C

injection molding, Mold temperature, recommended: 80 °C

injection molding, Dwell time, thermoplastics: 10 min

### Chemical Media Resistance

#### Acids

- ✓ Acetic Acid (5% by mass) (23°C)